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| 09/856,342      | 08/23/2001  | Hermann Bruggendick  | AZ.2673             | 6856             |

30996 7590 06/04/2003

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| EXAMINER |
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COCKS, JOSIAH C

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| ART UNIT | PAPER NUMBER |
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3743

DATE MAILED: 06/04/2003

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Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/856,342

Applicant(s)

BRUGGENDICK ET AL.

Examiner

Josiah C. Cocks

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 23 August 2001.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 7-13 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 7-13 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

### Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 6.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Response to Amendment*

1. Receipt of applicant's preliminary amendment filed 9/25/01 is acknowledged. The preliminary amendment has been entered.

### *Information Disclosure Statement*

2. The information disclosure statement (IDS) submitted on 4/29/02 has been considered by the examiner.

### *Claim Rejections - 35 USC § 102*

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 7, 9, and 11-13 are rejected under 35 U.S.C. 102(b) as being anticipated by *Leikert et al.* (US # 4,790,743).

*Leikert et al.* discloses in Figures 1-3 a method of burning nitrogen containing fuel while reducing the emission of nitrogen oxides substantially as described by applicant's claims 7, 9, and 11-13 including producing a fuel-rich (i.e. sub-stoichiometric) primary flame core and adding a nitrogen oxide reducing agent wherein the agent may consist of coal dust (i.e. a hydrocarbon) (see col. 2, lines 44-56). *Leikert et al.* further discloses that the flame core is

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enveloped with a veil of secondary air (see col. 3, lines 44-60) and the nitrogen reducing agent is introduced together with both primary/core air and with fuel (see col. 3, lines 14-35).

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

7. Claims 8 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Leikert et al.* as applied to claim 7 and 9 and further in view of *Beer et al.* (US # 5,411,394).

*Leikert et al.* discloses all the limitations of claims 8 and 10 except possibly a specific recitation of the flame temperature being greater than 1100 °C or for a veil of tertiary air around the flame core.

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In regard to claim 8, *Beer et al.* teaches a method of burning nitrogen containing fuel in the same field of endeavor as *Leikert et al.* wherein the method of *Beer et al.* acknowledges that low NO<sub>x</sub> burners using gaseous fuel, coal or fuel oil and forming a fuel-rich flame core having a flame core temperature of 1700 K (approximately 1450 °C or greater). Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made that the temperature of the flame core of *Leikert et al.* would be greater than 1100 °C or greater as taught by *Beer et al.* as such a temperature range is well known in the art as being desirable for low NO<sub>x</sub> methods of burning (see *Beer et al.*, col. 3, lines 34-67)

In regard to claim 10, *Beer et al.* teaches a method of burning nitrogen containing fuel in the same field of endeavor as *Leikert et al.* wherein the method of *Beer et al.* includes a veil of tertiary air enveloping the flame core (see col. 8, lines 21-31 and Fig. 2b). Therefore in regard to claim 10, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the method of *Leikert et al.* to incorporate the tertiary air veil of *Beer et al.* as the use of a tertiary air veil is particularly preferred in further assisting in the reduction of NO<sub>x</sub> production (see col. 8, lines 14-31).

### ***Conclusion***

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. *Dean, Schirmer et al., Yap, Tamminen et al.*, and DE 38 07 214 are included to further show the state of the art concerning methods of burning while reducing nitrogen oxides emission.


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9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Josiah Cocks whose telephone number is (703) 305-0450. The examiner can normally be reached on weekdays from 7:30 AM to 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Henry Bennett, can be reached at (703) 308-0101. The fax phone numbers for this Group are (703) 308-7764 for regular communications and (703) 305-3463 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-0861.

jcc  
June 2, 2003

  
JOSIAH COCKS  
PATENT EXAMINER  
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